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10/802,614	03/17/2004	David M. Ziemann	14846-53	4784
28221 7590 04/05/2007 PATENT DOCKET ADMINISTRATOR LOWENSTEIN SANDLER PC 65 LIVINGSTON AVENUE ROSELAND, NJ 07068			EXAMINER CAO, PHUONG THAO	
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SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/802,614	Applicant(s) ZIEMANN ET AL.	
	Examiner Phuong-Thao Cao	Art Unit 2164	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/12/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to Amendment filed on 1/8/2007.
2. Claims 2 and 12 have been canceled. Currently, claims 1 and 3-11 and 13-20 are pending.

Information Disclosure Statement

3. The Information Disclosure Statement filed by Applicant on 1/12/2007 has been received and considered. A copy of the reviewed IDS is enclosed with this office action.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 3-11 and 13-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 3-11 and 13-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter

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which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 1 and 11, the limitation “generating a query tree having a tree data structure by applying a mask to the input data to generate a query tree, the mask and the input data each corresponding to a tree data structure” is not enabled. There is no way to have two query trees generated by applying a mask to the input data, and it is unclear how to apply a mask to the input data to generate a query tree, the mask and the input data each corresponding to a tree data structure. It appears that there are four different tree data structures claimed in the recited limitation.

Claims 3-10 and 13-20 are rejected as incorporating the deficiencies of claims 1 and 11 upon which they depend respectively.

7. Claims 1 and 3-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the subject matter “computer-readable database” is directed to new subject matter since it is not defined in the specification.

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Claims 3-10 are rejected as incorporating the deficiencies of claim 1 upon which they depend.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It appears to have no connection between the last limitation "adding the input data to the database" with the precedent recited limitations.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claims 1, 3-11 and 13-20 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility.

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Regarding claims 1 and 11, the limitation "generating a query tree having a tree data structure by applying a mask to the input data to generate a query tree, the mask and the input data each corresponding to a tree data structure" is not enabled. There is no way to have two query trees generated by applying a mask to the input data, and it is unclear how to apply a mask to the input data to generate a query tree, the mask and the input data each corresponding to a tree data structure. It appears that there are four different tree data structures claimed in the recited limitation.

Claims 3-10 and 13-20 are rejected as incorporating the deficiencies of claims 1 and 11 upon which they depend respectively.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1, 3-11 and 13-20 as best understood by the examiner are rejected under 35 U.S.C. 103(a) as being unpatentable over Jagadish et al. ("Timber: A Native XML Database", 2002) in view of Lindblad et al. (Publication No US 2004/0060006).

As to claim 1, Jagadish et al. teaches:

"A method for updating a collection of tree data structures in a computer readable database with input data" (see Abstract and [page 275, column 1, paragraph 3] wherein XML document or XML database including a collection of subtrees [Fig. 1] and XML queries allow the updating data in the databases), the method comprising:

"generating a query tree having a tree data structure by applying a mask to the input data to generate a query tree, the mask and the input data each corresponding to a tree data structure" (see [page 278, column 1, paragraph 4] and [page 281, column 1, paragraph 1] wherein pattern tree is equivalent to Applicant's "query tree");

"storing the query tree in a computer-readable memory" (see [page 282, column 1, paragraph 1] wherein the disclosure of pattern tree reuse indicates that the pattern tree must be stored in some memory for reusing later wherein pattern tree is equivalent to Applicant's "query tree");

"applying the query tree to the collection of tree data structures in the database to identify an identified tree consistent with the query tree" (see [page 278, column 1, paragraph 4] and [page 278, column 2, paragraph 1] wherein pattern tree is equivalent to Applicant's "query tree", and witness tree is equivalent to Applicant's "identified tree").

Jagadish et al. does not teach:

"deleting the identified tree from the database"; and

"adding the input data to the database".

Lindblad et al. teaches:

"deleting the identified tree from the database" (see [0055] and [0178] wherein the subtree $S(n)$ is equivalent to Applicant's "identified tree"); and

"adding the input data to the database" (see [0055] wherein the subtree $S(n)$ is equivalent to Applicant's "input data").

It would have obvious to a person having ordinary skill in the art at the time the invention was made to have modified Jagadish et al. by the teaching of Lindblad et al., since both Jagadish et al. and Lindblad et al. pursue in the field of XML database system and adding the features of deleting the identified tree from the database and adding the input data to the database provides an obvious and effective way to updating data in the database.

As to claim 3, this claim is rejected based on arguments given above for rejected claim 1 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"receiving a set of input data comprising a plurality of input data including the unit of input data, each of the set of input data corresponding to a tree data structure" (see [page 277, column 2, paragraph 5]);

"generating the mask by identifying a common characteristic among the set of input data (see [page 278] wherein manipulated trees is equivalent to Applicant's "set of input data"; and pattern tree is equivalent to Applicant's "mask");

"storing the mask in the computer-readable memory" (see [page 282, column 1, paragraph 1] wherein the disclosure of pattern tree reuse indicates that the pattern tree

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must be stored in some memory for reusing later wherein pattern tree is equivalent to

Applicant's "mask"); and

"adding the set of input data to the database" (see [page 287, column 1, paragraph 3] for insertion of elements).

As to claim 4, this claim is rejected based on arguments given above for rejected claim 3 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"wherein the common characteristic among the set of input data comprises a matching node in each of the input data, and wherein each matching node has a same value and a same relative position as every other matching node" (see [page 278, column 1, paragraph 3-4] and [page 278, column 2, paragraph 5] wherein pattern identifies the common characteristic of a set of trees, as illustrated in Applicant's claim language).

As to claim 5, this claim is rejected based on arguments given above for rejected claim 4 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"wherein generating the mask generates the mask to have an extending node having the same relative position as each of the matching nodes" (see [page 278, column 1, paragraph 1] and Fig. 3 wherein pattern tree is equivalent to Applicant's "mask", and node connected to containment edges is equivalent to Applicant's "extending node"),

"wherein the query tree comprises a query node having the same relative position as each of the matching nodes and the extending node" see [page 278, column 1,

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paragraph 1] and Fig. 3 wherein pattern tree is equivalent to Applicant's "mask", and node connected to containment edges is equivalent to Applicant's "query node"), and

"wherein, when the mask is applied to the unit of input data to generate the query tree, the extending node propagates the values of unit of input data's matching node to the query node" (see [page 280, column 2, paragraph 3]).

As to claim.6, this claim is rejected based on arguments given above for rejected claim 5 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"wherein the identified tree comprises an identified node having the value and the same relative position as the query node" (see [page 278, column 2, paragraph 1] and Fig. 3 and Fig. 5 wherein pattern tree P is equivalent to Applicant's "query tree" and witness trees is equivalent to Applicant's "identified tree").

As to claim 7, this claim is rejected based on arguments given above for rejected claim 2 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"wherein the input data comprises a data node having a value" (see [page 278, column 2, paragraph 1]),

"wherein the mask has an extending node at the same relative position as the data node" (see Fig. 3 and Fig. 5),

"wherein the query tree comprises a query node at the same relative position as the data node and the extending node" (see [page 278, column 2, paragraph 4] wherein

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pattern tree is equivalent to Applicant's "query tree"),

"wherein, when the mask is applied to the input data to generate the query tree, the extending node propagates the values of unit of input data's matching node to the query node" (see [page 278, column 1, paragraph 4] and [page 280, column 2, paragraph 3] wherein pattern tree created from the input data of the query is equivalent to Applicant's "query tree"),

"wherein the identified tree comprises an identified node having the same relative position as the query node and having the value of the query node" (see page 278, Fig. 3 and Fig. 5 wherein pattern tree P is equivalent to Applicant's "query tree" and witness trees is equivalent to Applicant's "identified tree").

As to claim 8, this claim is rejected based on arguments given above for rejected claim 3 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"applying the mask to a second set of input data to generate a plurality of query trees each corresponding to a tree data structure, and each of the input data of the second set of input data corresponding to a tree data structure" (see [page 277, column 2, paragraph 5] for a tree operation which takes as input one or more sets of trees and produce as output a set of trees);

"storing the plurality of query trees in a computer-readable memory" (see [page 282, column 1, paragraph 1] wherein the disclosure of pattern tree reuse indicates that the pattern tree must be stored in some memory for reusing later wherein pattern tree is equivalent to Applicant's "query tree");

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"applying the plurality of query trees to the collection of tree data structures in the database to identify a plurality of identified trees consistent with at least one of the plurality of query trees" (see [page 278, column 1, paragraph 4] and [page 278, column 2, paragraph 1] wherein pattern tree is equivalent to Applicant's "query tree", and witness tree is equivalent to Applicant's "identified tree"; also see [page 277, column 2, paragraph 5] for a tree operation which takes as input one or more sets of trees and produce as output a set of trees);

"deleting the plurality of identified tree from the database" (see Lindblad et al., [0055] and [0178] wherein the subtree $S(n)$ is equivalent to Applicant's "identified tree"); and

"adding the second set of input data to the database" (see Lindblad et al., [0055] wherein the subtree $S(n')$ is equivalent to Applicant's "input data").

As to claim 9, this claim is rejected based on arguments given above for rejected claim 8 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

""wherein each of the input data of the second set of input data comprises a data node" (see [page 278, column 2, paragraph 1 and 4] for input tree of interest),

"wherein each data node have (1) a value, and (2) a same relative position as every other data node" (see page 278, Fig. 7 wherein pattern implies what is described in Applicant's claim language),

"wherein the mask has an extending node at the same relative position as each of the data nodes" (see Fig. 3 and Fig. 5),

"wherein each of the plurality of the query trees comprises a query node at the same relative position as the data node and the extending node" (see [page 278, column 2, paragraph 4] wherein pattern trees is equivalent to Applicant's "query tree"),

"wherein, when the mask is applied to the second set of input data to generate the plurality of the query trees, the extending node propagates the values of each of the data nodes to each of the respective query nodes" (see [page 278, column 1, paragraph 4] and [page 280, column 2, paragraph 3] wherein pattern tree created from the input data of the query is equivalent to Applicant's "query tree"; also see [page 277, column 2, paragraph 5] for a tree operation which takes as input one or more sets of trees and produce as output a set of trees),

"wherein the query nodes each have a different value" (see page 278, Fig. 3 wherein each node in the pattern tree P has different value); and

"wherein the plurality of identified tree each comprise an identified node having the same relative position as each of the query nodes and having a same value of the query nodes" (see page 278, Fig. 3 and Fig. 5 wherein pattern tree P is equivalent to Applicant's "query tree" and witness trees is equivalent to Applicant's "identified tree").

As to claim 10, this claim is rejected based on arguments given above for rejected claim 2 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"wherein the collection of tree data structures comprise heterogeneous data" (see Fig. 1 for collection of subtrees comprising heterogeneous data as illustrated in Applicant's claim language).

As to claim 11, Jagadish et al. teach:

"A system for updating a collection of tree data structures" (see Abstract and [page 275, column 1, paragraph 3] wherein XML document or XML database including a collection of subtrees [Fig. 1] and XML queries allow the updating data in the databases), the system comprising:

"a database component operative to maintain a database comprising the collection of tree data structures" (see Abstract and [page 274, column 2, paragraph 2]);

"a memory component" (see Abstract and [page 276, column 1]);

"an input component" (see [page 276, column 1, paragraph 2]); and

"a processing component communicatively connected to the database component, the memory component, and the input component" (see [page 277, column 1]), the processing component programmed to perform actions comprising:

"receiving input data from the input component, the input data corresponding to a data structure" (see [page 276, column 1, paragraph 2];

"generating a query tree having a tree data structure" (see [page 278, column 1, paragraph 4] and [page 281, column 1, paragraph 1] wherein pattern tree is equivalent to Applicant's "query tree");

"generating a query tree having a tree data structure by applying a mask to the input data to generate the query tree, the mask and the input data each corresponding to a tree data structure" (see [page 278, column 1, paragraph 4] and [page 281, column 1, paragraph 1] wherein pattern tree is equivalent to Applicant's "query tree");

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"storing the query tree in a computer-readable memory" (see [page 282, column 1, paragraph 1] wherein the disclosure of pattern tree reuse indicates that the pattern tree must be stored in some memory for reusing later wherein pattern tree is equivalent to Applicant's "query tree");

"applying the query tree to the collection of tree data structures in the database to identify an identified tree consistent with the query tree" (see [page 278, column 1, paragraph 4] and [page 278, column 2, paragraph 1] wherein pattern tree is equivalent to Applicant's "query tree", and witness tree is equivalent to Applicant's "identified tree");

Jagadish et al does not teach:

"instructing the database component to delete the identified tree from the database"; and "instructing the database component to add the input data to the database".

Lindblad et al. teaches:

"instructing the database component to delete the identified tree from the database" (see [0055] and [0178] wherein the subtree $S(n)$ is equivalent to Applicant's "identified tree"); and

"instructing the database component to add the input data to the database" (see [0055] wherein the subtree $S(n)$ is equivalent to Applicant's "input data").

It would have obvious to a person having ordinary skill in the art at the time the invention was made to have modified Jagadish et al. by the teaching of Lindblad et al., since both Jagadish et al. and Lindblad et al. pursue in the field of XML database system and adding the features of deleting the identified tree from the database and adding the input data to the database provides an obvious and effective way to updating data in the database.

As to claim 13, this claim is rejected based on arguments given above for rejected claim 11 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"receiving a set of input data comprising a plurality of input data including the unit of input data, each of the set of input data corresponding to a tree data structure" (see [page 277, column 2, paragraph 5]);

"generating the mask by identifying a common characteristic among the set of input data" (see [page 278] wherein manipulated trees is equivalent to Applicant's "set of input data"; and pattern tree is equivalent to Applicant's "mask");

"storing the mask in the computer-readable memory" (see [page 282, column 1, paragraph 1] wherein the disclosure of pattern tree reuse indicates that the pattern tree must be stored in some memory for reusing later wherein pattern tree is equivalent to Applicant's "mask"); and

"instructing the database component to add the set of input data to the database" (see [page 276, column 1, paragraph 2] and [page 287, column 1, paragraph 3] for insertion of elements).

As to claim 14, this claim is rejected based on arguments given above for rejected claim 13 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"wherein the common characteristic among the set of input data comprises a matching node in each of the input data, and wherein each matching node has a same

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value and a same relative position as every other matching node" (see [page 278, column 1, paragraph 3-4] and [page 278, column 2, paragraph 5] wherein pattern identifies the common characteristic of a set of trees, as illustrated in Applicant's claim language).

As to claim 15, this claim is rejected based on arguments given above for rejected claim 14 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"wherein generating the mask generates the mask to have an extending node having the same relative position as each of the matching nodes" (see [page 278, column 1, paragraph 1] and Fig. 3 wherein pattern tree is equivalent to Applicant's "mask", and node connected to containment edges is equivalent to Applicant's "extending node"),

"wherein the query tree comprises a query node having the same relative position as each of the matching nodes and the extending node" see [page 278, column 1, paragraph 1] and Fig. 3 wherein pattern tree is equivalent to Applicant's "mask", and node connected to containment edges is equivalent to Applicant's "query node"), and

"wherein, when the mask is applied to the unit of input data to generate the query tree, the extending node propagates the values of unit of input data's matching node to the query node" (see [page 280, column 2, paragraph 3]).

As to claim 16, this claim is rejected based on arguments given above for rejected claim 15 and is similarly rejected including the following:

Jagadish et al. as modified teach:

"wherein the identified tree comprises an identified node having the value and the same relative position as the query node" (see [page 278, column 2, paragraph 1] and Fig. 3 and Fig. 5 wherein pattern tree P is equivalent to Applicant's "query tree" and witness trees is equivalent to Applicant's "identified tree").

As to claim 17, this claim is rejected based on arguments given above for rejected claim 12 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"wherein the input data comprises a data node having a value" (see [page 278, column 2, paragraph 1]),

"wherein the mask has an extending node at the same relative position as the data node" (see Fig. 3 and Fig. 5),

"wherein the query tree comprises a query node at the same relative position as the data node and the extending node" (see [page 278, column 2, paragraph 4] wherein pattern tree is equivalent to Applicant's "query tree"),

"wherein, when the mask is applied to the input data to generate the query tree, the extending node propagates the values of unit of input data's matching node to the query node" (see [page 278, column 1, paragraph 4] and [page 280, column 2, paragraph 3] wherein pattern tree created from the input data of the query is equivalent to Applicant's "query tree"),

"wherein the identified tree comprises an identified node having the same relative position as the query node and having the value of the query node" (see page 278, Fig. 3

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and Fig. 5 wherein pattern tree P is equivalent to Applicant's "query tree" and witness trees is equivalent to Applicant's "identified tree").

As to claim 18, this claim is rejected based on arguments given above for rejected claim 13 and is similarly rejected including the following:

Jagadish et al. as modified teaches:

"applying the mask to a second set of input data to generate a plurality of query trees each corresponding to a tree data structure, and each of the input data of the second set of input data corresponding to a tree data structure" (see [page 277, column 2, paragraph 5] for a tree operation which takes as input one or more sets of trees and produce as output a set of trees);

"storing the plurality of query trees in a computer-readable memory" (see [page 282, column 1, paragraph 1] wherein the disclosure of pattern tree reuse indicates that the pattern tree must be stored in some memory for reusing later wherein pattern tree is equivalent to Applicant's "query tree");

"applying the plurality of query trees to the collection of tree data structures in the database to identify a plurality of identified trees consistent with at least one of the plurality of query trees" (see [page 278, column 1, paragraph 4] and [page 278, column 2, paragraph 1] wherein pattern tree is equivalent to Applicant's "query tree", and witness tree is equivalent to Applicant's "identified tree"; also see [page 277, column 2, paragraph 5] for a tree operation which takes as input one or more sets of trees and produce as output a set of trees);

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"instructing the database component to delete the plurality of identified tree from the database" (see Lindblad et al., [0055] and [0178] wherein the subtree $S(n)$ is equivalent to Applicant's "identified tree"); and

"instructing the database component to add the second set of input data to the database" (see Lindblad et al., [0055] wherein the subtree $S(n')$ is equivalent to Applicant's "input data").

As to claim 19, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Jagadish et al. as modified teach:

"wherein each of the input data of the second set of input data comprises a data node" (see [page 278, column 2, paragraph 1 and 4] for input tree of interest),

"wherein each data node have (1) a value, and (2) a same relative position as every other data node" (see page 278, Fig. 7 wherein pattern implies what is described in Applicant's claim language),

"wherein the mask has an extending node at the same relative position as each of the data nodes" (see Fig. 3 and Fig. 5),

"wherein each of the plurality of the query trees comprises a query node at the same relative position as the data node and the extending node" (see [page 278, column 2, paragraph 4] wherein pattern trees is equivalent to Applicant's "query tree"),

"wherein, when the mask is applied to the second set of input data to generate the plurality of the query trees, the extending node propagates the values of each of the data nodes to each of the respective query nodes" (see [page 278, column 1, paragraph 4] and

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[page 280, column 2, paragraph 3] wherein pattern tree created from the input data of the query is equivalent to Applicant's "query tree"; also see [page 277, column 2, paragraph 5] for a tree operation which takes as input one or more sets of trees and produce as output a set of trees),

"wherein the query nodes each have a different value" (see page 278, Fig. 3 wherein each node in the pattern tree P has different value), and

"wherein the plurality of identified tree each comprise an identified node having the same relative position as each of the query nodes and having a same value of the query nodes" (see page 278, Fig. 3 and Fig. 5 wherein pattern tree P is equivalent to Applicant's "query tree" and witness trees is equivalent to Applicant's "identified tree").

As to claim 20, this claim is rejected based on arguments given above for rejected claim 11 and is similarly rejected including the following:

Jagadish et al. as modified teach:

"wherein the collection of tree data structures comprise heterogeneous data" (see Fig. 1 for collection of subtrees comprising heterogeneous data as illustrated in Applicant's claim language).

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong-Thao Cao whose telephone number is (571) 272-2735. The examiner can normally be reached on 8:30 AM - 5:00 PM (Mon - Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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